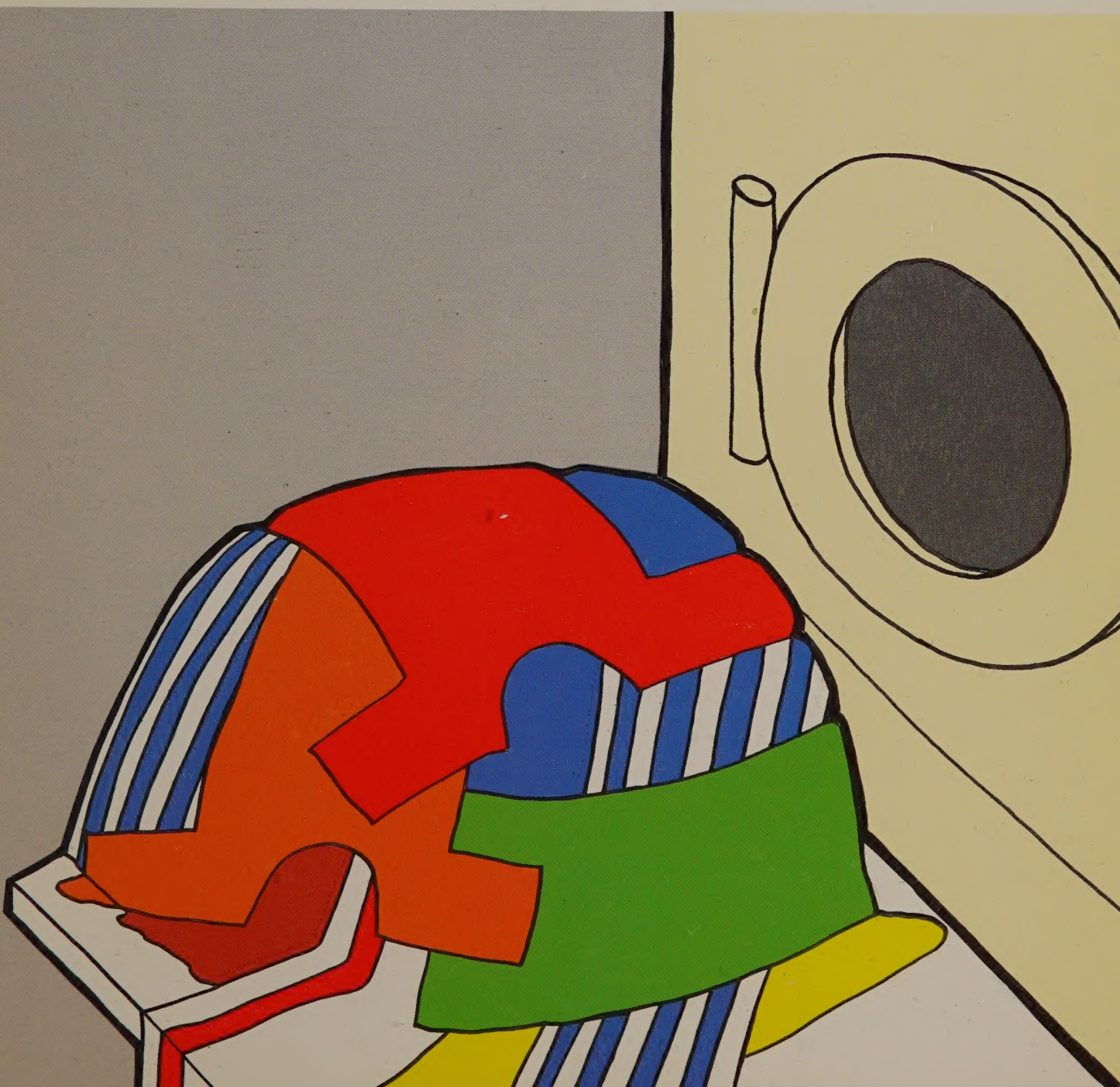
MCO 293

Department of Health and Social Security
and the Welsh Office

Fire
Practice
Note 1

FIRECODE

Laundries



Department of Health and Social Security
and the Welsh Office

Fire
Practice
Note 1

FIRECODE

Laundries

London Her Majesty's Stationery Office

ISBN 0 11 321110 4

©Crown copyright 1987
First published 1987

FIRECODE brings together in one comprehensive suite of documents the Department's policy and technical guidance on fire precautions in hospitals and other NHS premises.

Basic policy, principles and key management guidance are contained in *Firecode: Policy and Principles.* Other *FIRECODE* documents include the *Health Technical Memoranda* '80' series (which give technical guidance on various building, engineering and equipment issues) and the *Fire Practice Notes* series (dealing with various specialist aspects of fire precautions) and Nucleus guidance. Existing HTMs will, in due course, be reissued in *FIRECODE* format. The suite includes *Firecode: Directory of Fire Documents* which lists references to relevant legislation and relevant fire precautions guidance issued by non-DHSS sources (as, for example, the Home Office).

For the convenience of the user, a *FIRECODE* binder and slip case are available for the storage of the constituent *FIRECODE* documents. The binder includes details of the publications which make up *FIRECODE.*
The *FIRECODE* binder, reference ISBN 0 11 321097 3, is available from HMSO Books, PO Box 276, Nine Elms Lane, London SW8 5DT.

Fire Practice Note 1
Laundries

Contents

		Page No.
I.	**Introduction**	3
II.	**General Requirements**	4
III.	**Fire Precautions**	5
	Spontaneous combustion	
	Smoking	
	Electrical faults	
	Flammable liquids	
	Cleaning	
IV.	**The Laundry Building and Means of Escape**	6
V.	**Fire Alarms**	7
	Manual call points	
	Fire alarm sounders	
	Automatic fire detection	
	Communication with the fire brigade	
	False alarms	
VI.	**Sprinkler Systems**	9
VII.	**Fire Fighting**	10
VIII.	**Smoke Control**	11
IX.	**Security Patrols**	12
X.	**References**	13

I. Introduction

1.1 This fire practice note (FPN) is referred to in Appendix 6 of HTM 81 [1] . It gives technical guidance on fire safety relating to health service laundries. It is applicable to all laundries designed in accordance with HBN 25 "Laundry" [2] and should be read in conjunction with the HBN.

1.2 This FPN updates the advice given in HBN 25 dated 1977 on fire safety and supersedes paragraphs 2.14 to 2.16 and 7.49 to 7.52 therein.

1.3 Adequate attention should be paid to fire safety from the outset of new projects and upgradings. The planning and design of the fire precautions for the laundry should be in accordance with HTM 81. In particular, attention is drawn to Sections 3, 4, 5 and 6 of HTM 81 concerning statutory regulations, including the Fire Precautions Act and Building Regulations, consultation procedures and fire separation.

1.4 A fire certificate will be required for laundries designed to HBN 25; see FIRECODE [3] section 2 and HTM 81 paragraph 3.1. The laundry should comply with the recommendations of the Home Office's Guides to the Fire Precautions Act 1971, No. 2 Factories [4] (referred to in this FPN as the "Home Office Guide").

II. General Requirements

2.1 The prime objective of fire precautions is to minimise the risk to life from fire. To attain this objective it must be possible to raise the alarm quickly from manual call points and effect a rapid evacuation of the laundry building. Adequate first aid fire fighting equipment must be provided.

2.2 The protection of the NHS estate is a secondary objective. Expenditure on systems to protect property and equipment from fire should reflect the loss that could be suffered in the event of a fire. A laundry fire may result in either the complete or partial loss of linen services to one or more hospitals, as well as loss of or damage to expensive items of plant and equipment. The aim of property protection systems is to minimise such losses.

2.3 Most serious laundry fires occur during "silent" hours when people are not present to raise the alarm. Because of the high capital value of laundry plant and equipment and the critical importance of the laundry service, an automatic fire protection system will generally be justified, except perhaps in very small launderettes and existing laundries nearing the end of their economic life. The cost of an automatic fire detection system is incorporated in HBN 25, Departmental Cost Allowances for all new laundries of over 55,000 articles per week capacity.

2.4 The selection and specification of fire protection equipment should take account of the laundry environment and the particular hazards associated with laundry fires. For instance, a large proportion of laundry fires emanate from smouldering linen and the early detection of smoke leading to an early attendance by fire fighters can prevent a major conflagration.

2.5 Fires in the laundry caused by spontaneous combustion through a build up of heat at the centre of bulk loads of hot linen may produce very little smoke or heat for some time, maybe a few hours, before eventually bursting into flame. The lack of smoke or heat means that fires of this type are unlikely to be detected at an early stage by automatic detectors. Particular care should be taken to ensure that the conditions which could result in such fires are not allowed to occur (see paragraphs 3.1 to 3.4).

III. Fire Precautions

Spontaneous combustion

3.1 Laundry fires are sometimes attributed to the spontaneous combustion of compacted linen which has been tumbler dried. Advice on the prevention of this cause of fire is given in HTM 83 [5] paragraphs 6.8 and 6.9.

3.2 Tumblers should be positioned so that operators engaged in folding fully dried articles can deal with them immediately the tumbler is unloaded.

3.3 The fire risk from bulk loads of hot dried work is very real and ideally tumblers should be equipped with manual, or preferably automatic means for cooling the load at the end of the drying cycle. Operationally, on tumblers used for polyester fabrics there is a special need for a cooling cycle to give a satisfactory finish. manual, or preferably automatic, means for cooling the load at the end of the drying cycle. Operationally, on tumblers used for polyester fabrics there is a special need for a cooling cycle to give a satisfactory finish.

3.4 Hospital authorities should display, in appropriate positions, instructions to employees on the safe operation of tumbler driers and the handling of dried loads.

Smoking

3.5 Carelessly discarded smokers' materials are another significant cause of laundry fires and it is recommended that smoking is restricted to common or rest rooms provided with non-combustible ashtrays and that these rooms are frequently checked, at least at the end of each shift. Smoking should be prohibited in working areas, particularly in tumbler drying and finishing and linen storage and packing areas, and in dry cleaning sections (where flammable solvents will be present for "spotting" use). To this end "No Smoking" signs should be displayed in prominent positions in the laundry.

Electrical faults

3.6 Other causes of laundry fires include electrical equipment faults and wiring defects. These risks should be minimised by the safe design, installation and maintenance of electrical services and equipment. The electrical installation of the laundry should comply with the current edition of the IEE wiring regulations [6] and The Electricity (Factories Act) Special Regulations 1908 and 1944 [7].

Flammable liquids

3.7 Many of the chemicals used in dry cleaning, and particularly those used for the removal of stains by "spotting", are highly flammable. Only small quantities of these chemicals for daily use should be allowed inside the laundry. Flammable liquids should be stored in a safe place in the open air or in suitably designed and constructed store rooms as recommended in FPN 2 [8]. Substances subject to the Highly Flammable Liquids and Liquidified Petroleum Gases Regulations 1972 [9] should be stored and used as required by those regulations.

Cleaning

3.8 Laundries should be regularly cleaned to prevent the accumulation of fluff which would pose a fire hazard, see HTM 83 [5] paragraphs 6.6 and 6.7.

IV. The Laundry Building and Means of Escape

4.1 Half-hour fire resisting enclosures are recommended for every room in the main laundry in which linen delivery, sorting, processing and packing procedures are carried out, and for linen stores; see HTM 81 [1].

4.2 Means of escape arrangements should be in accordance with the recommendations of the Home Office Guide. Because of the need to maintain efficient production flow lines it is not practicable to divide the main production area into smaller fire compartments. Therefore the laundry should be planned in such a way that the escape travel distances recommended by the guide are achieved in the main production area without the need for sub-compartmentation.

V. Fire Alarms

5.1 A fire alarm system should be installed in the laundry and should be to the standard set out in HTM 82[10]. Some important features of the system in the laundry are described in the following paragraphs.

Manual call points

5.2 During working hours outbreaks of fire in the continuously manned areas of the laundry will generally be noticed by staff well before they are detected by automatic fire detectors. Adequate manual call points should be provided and sited so that staff can quickly and easily raise the alarm.

Fire alarm sounders

5.3 Fire alarm sounders must be clearly audible above the noise of the laundry equipment and any piped music. The audible warning system should be designed with this in mind, and sound level tests with a sound level meter should be made with the laundry fully operational to confirm that the alarms are at least 5 dBA above the background noise in all occupiable areas. In particularly noisy areas, visual warning, such as flashing beacons, may be considered to supplement the audible system.

Automatic fire detection

5.4 It is recommended that an automatic fire detection system is installed to give full cover to the laundry building. The purpose of this system is to detect fires at the earliest possible stage during silent hours so that extensive property damage can be prevented by the prompt attendance of fire fighters.

5.5 The ionisation type smoke detector is particularly suited to laundries because of its fast response to the smoke produced in textile fires. In general, it is recommended that ionisation type smoke detectors are provided to cover the main production hall comprising tumbler drying, calendering, pressing, packing and despatch sections, linen store and repair rooms, and also in the soiled linen sorting and classification area.

5.6 In some areas of the laundry smoke detectors may give rise to a high rate of false alarms, for example where there are steam escapes or where the humidity is high, such as in soap and alkali tank make-up areas. In these areas heat detectors will be more appropriate. Heat detectors should be carefully selected and sited so as not to render the fire detection capability of the system unduly insensitive. They should be rated and sited to suit the relatively high ambient temperatures in some parts of the laundry.

5.7 Whilst optical beam-type smoke detectors may be economical in comparison with point-type smoke detectors for large open areas such as the main production hall, they may yield excessive false alarms, for example because of heat "shimmer" over calenders. Also, in steel-framed laundry buildings, movement of the steel frame, for instance as a result of temperature fluctuations, may cause mis-alignment of the beam and thus make the system unstable. Nevertheless, optical beam detectors have been used successfully in some laundries. Their use in a particular installation should be discussed with the manufacturer with these points in mind.

Communication with the fire brigade

5.8 An effective and reliable procedure for calling the fire brigade is essential and the local fire brigade Chief Officer should be consulted. Methods of calling the fire brigade are given in HTM 82[10] section 3.

False alarms

5.9 The automatic fire detection system should be designed and installed to minimise the incidence of false alarms, whilst maintaining fire sensitivity. The laundry environment is particularly severe in this respect. By the judicious use of heat detectors where smoke detectors are unsuitable, and the careful siting of all detectors, the number of false alarms can usually be kept within acceptable limits. In general, smoke detectors should not be located where they will be exposed to steam leaks, or in areas of high humidity. The temperatures in the laundry, particularly in the vicinity of tumbler dryers and calenders can rise suddenly when this equipment is started and it may be unwise to install rate of rise type heat detectors near such equipment. Similarly where glazing is provided as part of the roof construction rapid changes in temperature due to solar gain can occur under the roof and rate of rise detectors should not be used. Heat detectors should also be protected from direct sunlight.

5.10 A number of false alarms from smoke detectors in laundries has been due to the build up of fluff and lint within the sensing chamber of the detector. Fluff and lint may also block the air passages into the detector if allowed to accumulate. More frequent cleaning of detectors in affected areas may be necessary to alleviate such problems.

5.11 In some cases it may not be possible to reduce the incidence of false alarms sufficiently without an unacceptable deterioration in the effectiveness of the installation. Where false alarms are caused by the laundry operating environment during manned hours, consideration should be given to either

i) disabling some or all of the automatic detectors whilst the laundry in manned, or

ii) the installation of a signal delay unit.

5.12 If detectors are disabled during manned hours, there must be some foolproof means of ensuring the detectors are active during silent hours. Detectors installed to enhance life safety must not be so disabled and it must be possible to raise the alarm from the manual call points at all times.

5.13 A signal delay unit postpones the automatic transmission of the fire signal to the fire brigade whilst the validity of the alarm is investigated and may be considered where the frequency of false fire calls to the brigade is unacceptable. It does not affect the sounding of the alarm in the laundry. Any such arrangement would be subject to the approval of the fire brigade and the delay related to the attendance time of the brigade. The advice on signal delay units given in BS 5839 Part 1[11] should be followed. The procedures for searching the laundry and cancelling or otherwise the call to the brigade should be given careful consideration. Such a device should only be active at times when sufficient staff, trained in these procedures, are available.

VI. Sprinkler Systems

6.1 In some instances the use of sprinklers may be cost effective. Sprinklers, being heat operated devices, cannot respond as quickly as a smoke detection system to smouldering fires. Detection by a smoke detection system followed by a rapid response by fire fighters is likely to result in the fire being tackled before sprinklers would have operated. However, a sprinkler system may be justified for laundries in isolated locations where the fire brigade response time could be protracted, or where poor fire fighting access within the laundry could delay effective action.

6.2 The incidence of false alarms from sprinkler systems and the risk of untimely release of water is very low. A properly designed system should not be affected by water surges and adverse environmental conditions. Therefore there is very little risk of damage to expensive laundry equipment through faulty operation.

6.3 Sprinkler systems should comply with the recommendations of BS 5306 Part 2 [12].

6.4 A sprinkler system cannot be justified in addition to an automatic fire detection system giving full cover to the laundry. Wherever sprinkler protection is installed it should be designed to provide a signal to the electrical fire alarm system and initiate a call to the fire brigade.

VII. Fire Fighting

7.1 Adequate hand operated appliances of the appropriate type should be provided and sited so as to be readily accessible for use in the laundry. In particular it is recommended that hose reels should be provided to reach all areas where linen is stored or handled, allowing for obstructions by mobile equipment etc that are likely to occur in practice, so that smouldering linen can be immediately quenched with copious supplies of water. Suitable non-water filled portable extinguishers should be provided to deal with fires involving electrical equipment and where there is a risk from flammable liquids such as dry cleaning and "spotting" areas. Detailed guidance relating to the specification of portable fire extinguishers in BS 5306 Part 3 [13] should be followed.

VIII. Smoke Control

8.1 Laundry fires involving linen usually emit large volumes of smoke. To prevent smoke-logging and to assist evacuation and the fire fighting process, provision should be made for smoke removal by the installation of automatic roof ventilators and/or provision made for the fire alarm system automatically to switch on the roof extract system. In these circumstances it would be an advantage for the extract fans to be operated in zones.

8.2 Extract ventilation for smoke removal will need to continue to operate after the outbreak of fire and the associated wiring should therefore be fire resisting, or protected within fire resisting enclosures.

IX. Security Patrols

9.1 Because of the nature of spontaneous combustion, fires started in this way can remain undetected by automatic systems for up to three or four hours after the laundry has closed. Consideration should be given to organising a fire patrol to inspect the laundry thoroughly in the critical period soon after cessation of work. The patrol should be on the look out for incipient fire and for situations which have fire potential, such as hot linen lying in piles.

X. References

1. Department of Health and Social Security and Welsh Office. FIRECODE: Fire precautions in new hospitals (Health Technical Memorandum 81). London, HMSO.

2. Department of Health and Social Security and Welsh Office. Health Building Note 25. Laundry. London, HMSO, 1977.

3. Department of Health and Social Security and Welsh Office. FIRECODE. London, HMSO.

4. Home Office. Guides to the Fire Precautions Act 1971, 2, Factories. 1977. Home Office

5. Department of Health and Social Security and Welsh Office. Fire safety in health care premises, General fire precautions (Health Technical Memorandum 83). London, HMSO.

6. Institution of Electrical Engineers. Regulations for electrical installations. Fifteenth edition. IEE 1981. (Plus subsequent amendments).

7. The Electricity (Factories Act) Special Regulations 1908 and 1944.

8. Department of Health and Social Security and Welsh Office. FIRECODE: Storage of flammable liquids (Fire Practice Note 2). London, HMSO.

9. The Highly Flammable Liquids and Liquified Petroleum Gases Regulations 1972 (SI 1972 No 917). HMSO.

10. Department of Health and Social Security and Welsh Office. Fire safety in health care premises, Fire alarm and detection systems (Health Technical Memorandum 82). London, HMSO

11. British Standards Institution. BS 5839. Fire detection and alarm systems in buildings. Part 1: 1980. Code of practice for installation and servicing.

12. British Standards Institution. BS 5306. Fire extinguishing installations and equipment on premises. Part 2: 1979. Sprinkler systems.

13. British Standards Institution. BS 5306. Fire extinguishing installations and equipment on premises. Part 3: 1985. Code of practice for the selection, installation and maintenance of portable fire extinguishers.

Printed in the United Kingdom for Her Majesty's Stationery Office
Dd289945 C45 10/87 3936 12521

PUBLICATIONS IN THE FIRECODE SERIES

FIRECODE: *Directory of Fire Documents*
ISBN 0 11 321108 2 November 1987

FIRECODE: *Policy and Principles*
ISBN 0 11 321109 0 November 1987

FIRECODE: *Nucleus Fire Precautions Recommendations*
ISBN 0 11 321117 1 Spring 1988

HEALTH TECHNICAL MEMORANDA (HTM)

FIRECODE: *Fire Precautions in New Hospitals (HTM 81)*
ISBN 0 11 321082 5 November 1987

FIRECODE: *Alarm and Detection Systems (HTM 82)*
ISBN 0 11 321099 X Spring 1988

FIRECODE: *General Fire Precautions (HTM 83)*
ISBN 0 11 321100 7 Spring 1988

FIRECODE: *Fire Precautions in New Old Peoples Homes (HTM 84)*
ISBN 0 11 321101 5 Spring 1988

FIRECODE: *Assessing Fire Risk in Existing Hospital Wards (HTM 86)*
ISBN 0 11 321103 1 November 1987

FIRECODE: *Textiles and Furniture (HTM 87)*
ISBN 0 11 321104 X Spring 1988

FIRECODE: *Fire Precautions in Unsupervised Group Homes (HTM 88)*
ISBN 0 11 321105 8 Summer 1988

FIRE PRACTICE NOTES (FPN)

FPN 1: *Laundries*
ISBN 0 11 321110 4 November 1987

FPN 2: *Storage of Flammable Liquids*
ISBN 0 11 321111 2 November 1987

FPN 3: *Escape Bed Lifts*
ISBN 0 11 321112 0 November 1987

FPN 4: *Kitchens*
ISBN 0 11 321113 9 Autumn 1988

FPN 5: *Boiler and Incinerator Rooms*
ISBN 0 11 321114 7 Autumn 1988

FPN 6: *Laboratories*
ISBN 0 11 321115 5 Autumn 1988

HMSO publications are available from:

HMSO Publications Centre
(Mail and telephone orders only)
PO Box 276, London, SW8 5DT
Telephone orders 01-622 3316
General enquiries 01-211 5656
(queuing system in operation for both numbers)

HMSO Bookshops
49 High Holborn, London, WC1V 6HB 01-211 5656 (Counter service only)
258 Broad Street, Birmingham, B1 2HE 021-643 3740
Southey House, 33 Wine Street, Bristol, BS1 2BQ (0272) 264306
9-21 Princess Street, Manchester, M60 8AS 061-834 7201
80 Chichester Street, Belfast, BT1 4JY (0232) 238451
71 Lothian Road, Edinburgh, EH3 9AZ 031-228 4181

HMSO's Accredited Agents
(see Yellow Pages)

and through good booksellers

£2.60 net

ISBN 0 11 321110 4